



METHOD AND APPARATUS FOR DISCRIMINATING AND COUNTING DOCUMENTS

CROSS-REFERENCE TO RELATED APPLICATIONS

5 This application is a continuation of pending United States application Serial No. 08/399,854 filed March 7, 1995, which is a continuation-in-part of pending United States patent applications Serial No. 08/340,031 filed November 14, 1994, for a "Method And Apparatus For Discriminating and Counting Documents," Serial No. 08/287,882 filed August 9, 1994 for a "Method and Apparatus for Document
10 Identification," and Serial No. 08/394,752 filed February 27, 1995 for a "Method of Generating Modified Patterns and Method and Apparatus for Using the Same in a Currency Identification System."

United States patent application Serial No. 08/394,752 filed February 27, 1995 for a "Method of Generating Modified Patterns and Method and Apparatus for Using
15 the Same in a Currency Identification System" is a continuation-in-part of pending United States patent applications Serial No. 08/340,031 and Serial No. 08/127,334 filed September 27, 1993, for a "Method and Apparatus for Currency Discrimination and Counting."

United States patent application Serial No. 08/287,882 is a continuation-in-part of pending United States patent applications Serial No. 08/207,592 filed March 8, 1994 for "Method and Apparatus for Currency Discrimination," Serial No. 08/219,093 filed on March 29, 1994, for a "Currency Discriminator and Authenticator," and Serial No. 08/127,334 filed September 27, 1993, for a "Method and Apparatus for Currency Discrimination and Counting." United States patent applications Serial No.
25 08/207,592 and Serial No. 08/219,093 are both continuation-in-part applications of Serial No. 08/127,334.

United States patent application Serial No. 08/340,031 is a continuation-in-part of pending United States patent applications Serial No. 08/243,807 filed May 16, 1994, for "Method And Apparatus For Currency Discrimination" and Serial No.
30 08/207,592 filed March 8, 1994 for "Method and Apparatus for Currency Discrimination." United States patent application Serial No. 08/207,592 is a continuation-in-part of Serial No. 08/127,334. United States patent application Serial

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No. 08/243,807 is a continuation-in-part of 08/219,093 and Serial No. 08/127,334. United States patent application Serial No. 08/219,093 is a continuation-in-part of Serial No. 08/127,334.

5 United States patent application Serial No. 08/127,334 filed September 27, 1993, for a "Method and Apparatus for Currency Discrimination and Counting," is a continuation of United States patent application Serial No. 07/885,648, filed on May 19, 1992, and issued as United States Patent No. 5,295,196, for a "Method and Apparatus for Currency Discrimination and Counting," which is a continuation-in-part of abandoned United States patent application Serial No. 07/475,111, filed February 10 5, 1990, for a "Method and Apparatus for Currency Discrimination and Counting."

FIELD OF THE INVENTION

The present invention relates, in general, to document identification. More specifically, the present invention relates to an apparatus and method for 15 discriminating among a plurality of document types such as currency bills of different denominations and/or from different countries.

BACKGROUND OF THE INVENTION

20 Machines that are currently available for simultaneous scanning and counting of documents such as paper currency are relatively complex and costly, and relatively large in size. The complexity of such machines can also lead to excessive service and maintenance requirements. These drawbacks have inhibited more widespread use of such machines, particularly in banks and other financial institutions where space is limited in areas where the machines are most needed, such as teller areas. The above 25 drawbacks are particularly difficult to overcome in machines which offer much-needed features such as the ability to scan bills regardless of their orientation relative to the machine or to each other, and the ability to authenticate genuineness and/or denomination of the bills.

30 A variety of techniques and apparatus have been used to satisfy the requirements of automated currency handling systems. At the lower end of sophistication in this area of technology are systems capable of handling only a specific type of currency, such as a specific dollar denomination, while rejecting all